Claims

1. An isolated essentially mammalian positive-sense single stranded RNA virus (SARS) comprising one or more of the sequences of figure 2.

2. An isolated positive-sense single stranded RNA virus (SARS) belonging to the Coronaviruses and identifiable as phylogenetically corresponding thereto by determining a nucleic acid sequence of said virus and testing it in phylogenetic tree analyses wherein maximum likelihood trees are generated using 100 bootstraps and 3 jumbles and finding it to be more closely phylogenetically corresponding to a virus isolate having the sequences as depicted in figure 2 than it is corresponding to a virus isolate of BoCo (bovine coronavirus), MHV (murine hepatitis virus), AIBV (avian infectious bronchitis virus), PEDV (porcine epidemic diarrhea virus), TGEV (transmissible gastroenteritis virus) or 229E (human coronavirus 229E)..

3. A virus according to claim 1 or 2 wherein said nucleic acid sequence comprises an open reading frame (ORF) encoding a viral protein of said virus.

4. A virus according to claim 3 wherein said open reading frame is selected from the group of ORFs encoding the viral replicase, nuclear capsid protein and the spike protein.

5. A virus according to claim 1-4 isolatable from a human with atypical pneumonia.

6. An isolated or recombinant nucleic acid or SARS virus-specific functional fragment thereof obtainable from a virus according to anyone of claims 1 to 5.

7. A vector comprising a nucleic acid according to claim 6.

8. A host cell comprising a nucleic acid according to claim 6 or a vector according to claim 7.

9. An isolated or recombinant proteinaceous molecule or SARS virus-specific functional fragment thereof encoded by a nucleic acid according to claim 6.

10. An antigen comprising a proteinaceous molecule or SARS virus-specific functional fragment thereof according to claim 9.

11. An antibody specifically directed against an antigen according to claim 10.

12. A method for identifying a viral isolate as a SARS virus comprising reacting said viral isolate or a component thereof with an antibody according to claim 11.

13. A method for identifying a viral isolate as a SARS virus comprising reacting said viral isolate or a component thereof with a nucleic acid according to claim 6.

14. A method for virologically diagnosing a SARS infection of a mammal comprising determining in a sample of said mammal the presence of a viral isolate or component thereof by reacting said sample with a nucleic acid according to claim 6 or an antibody according to claim 11.

15. A method for serologically diagnosing a SARS infection of a mammal comprising determining in a sample of said mammal the presence of an antibody specifically directed against a SARS virus or component thereof by reacting said sample with a proteinaceous molecule or fragment thereof according to claim 9 or an antigen according to claim 10.

16. A diagnostic kit for diagnosing a SARS infection comprising a virus according to anyone of claims 1 to 5, a nucleic acid according to claim 6, a proteinaceous molecule or fragment thereof according to claim 9, an antigen according to claim 10 and/or an antibody according to claim 11.

17. Use of a virus according to any one claims 1 to 5, a nucleic acid according to claim 6, a vector according to claim 7, a host cell according to claim 8, a proteinaceous molecule or fragment thereof according to claim 9, an antigen according to claim 10,

or an antibody according to claim 11 for the production of a pharmaceutical composition.

18. Use according to claim 17 for the production of a pharmaceutical composition for the treatment or prevention of a SARS virus infection.

19. Use according to claim 17 or 18 for the production of a pharmaceutical composition for the treatment or prevention of atypical pneumonia.

20. A pharmaceutical composition comprising a virus according to any one of claims 1 to 5, a nucleic acid according to claim 6, a vector according to claim 7, a host cell according to claim 8, a proteinaceous molecule or fragment thereof according to claim 9, an antigen according to claim 10, or an antibody according to claim 11.

21. A method for the treatment or prevention of a SARS virus infection comprising providing an individual with a pharmaceutical composition according to claim 20.

22. A method for the treatment or prevention of atypical pneumonia comprising providing an individual with a pharmaceutical composition according to claim 20.

23. A viral replicase encoded by an RNA sequence comprising the sequences EMC-1, EMC-2, EMC-3, EMC-4, EMC-5, EMC-6, EMC-7, EMC-13 and/or EMC-14, or homologues thereof as depicted in figure 2.

24. A viral spike protein comprising the amino acid depicted as translation 2 with sequence EMC-7 and translation 1 of RDG 1 as depicted in figure 2, or a homologue thereof.

25. A viral nuclear capsid protein encoded by an RNA sequence comprising the sequence EMC-8 as depicted in figure 2 or a homologue thereof.

26. A viral protein encoded by an RNA sequence comprising the sequence EMC-9, EMC-11 and/or EMC-12 as depicted in figure 2.

27. A nucleic acid sequence which comprises one or more of the sequences EMC-1 to EMC-13 as depicted in figure 13 or a nucleic acid sequence which can hybridise with any of these sequences under stringent conditions.

28. Use of interferon for the preparation of a medicament for the treatment or prevention of a coronavirus associated disease.

29. Use according to claim 28 wherein said interferon is interferon alpha.

30. Use according to claim 29, wherein said interferon is interferon-alpha 2a.

31. Use according to claim 29, wherein said interferon is interferon-alpha 2b.

32. Use according to any of claims 28-31, wherein said interferon is pegylated.

33. Use according to any of claims 28-32, wherein said coronavirus associated disease is a disease of animals, preferably vertebrates, more preferably birds or mammals, especially humans, ape or rodent.

34. Use according to claim 33, wherein said disease is a respiratory disease and/or gastroenteritis.

35. Use according to claim 33 or claim 34, wherein said animal is human.

36. Use according to any of claims 28-35 wherein said coronavirus associated disease is a disease caused by HcoV-NL, the feline infectious peritonitis virus (FIPV) or hemagglutinating encephalomyelitis virus (HEV) of swine or avian infectious bronchitis virus (IBV) or mouse hepatitis virus (MHV).

37. Use according to any of claims 28-35 wherein said coronavirus associated disease is a disease caused by a SARS coronavirus (SARS-CoV).

38. Use according to claim 37, wherein said SARS virus is a positive-sense single stranded RNA virus (SARS coronavirus) comprising one or more of the sequences of figure 2.

39. Use according to claim 28, wherein said SARS virus is a positive-sense single stranded RNA virus (SARS coronavirus) corresponding to GenBank accession no. AY274119 or AY278741 or AY338175 or AY338174 or AY322199 or AY 322198 or AY322197 or AH013000 or AY322208 or AY322207 or AY 322206 or AY322205 or AH012999.

40. A method for the treatment or prevention of a coronavirus associated disease in an animal, preferably a vertebrate, more preferably a bird or mammal, especially human, ape or rodent, infected with a coronavirus, said method comprising administrating interferon, to said animal, preferably a vertebrate, more preferably a bird or mammal, especially human, ape or rodent, along with a pharmaceutically acceptable carrier.

41. A method according to any of claims 40 wherein said interferon is administered together with a vaccine, antibody and/or antiviral agent.

42. A method according to claim 41, wherein said vaccine, antibody and/or anti-viral agent is selected from the group consisting of whole inactivated virus vaccines, attenuated vaccines, sub-unit vaccines, recombinant vaccines, antibody for passive immunization, nucleoside analogs such as ribavirin, RNA-dependent RNA polymerase inhibitors, protease inhibitors.